Drought Update Report

NWS Reno

Issued: 07/14/2021

Schedule: Monthly during periods of extreme drought designation

Drought conditions persist

Synopsis: June and early July have been hot throughout the region, and while some strong isolated thunderstorms in late June and early July produced significant precipitation, the limited aerial coverage minimized any improvements in conditions. These thunderstorms have led to above average 30 day precipitation south of Lake Tahoe, and in Lassen county (Figure 1), but keep in mind it is easy to get above average precipitation this time of year when climatology is near zero. Since mid June temperatures have been much above average (Figure 1) with only a few days near average. For Reno Airport the average temperature for June was 6.0 degrees above normal,and 8.0 degrees above normal for early July through the 12th. At 75.2F this was the hottest June over a 128 year record for Reno, breaking the previous record (2015) by 1.1 degrees. In contrast, June of 2020 had a relatively cool average temperature of 68.1F in Reno.

Water year to date precipitation in the mountains as measured by the NRCS SNOTEL system is now barely above the record low, and the lowest in over 30 years for the combined Tahoe, Truckee, Carson, and Walker basins with nearly 40 years of data (Figure 2). Thunderstorm precipitation has kept SNOTEL soil moisture slightly above record low conditions (Figure 3). Evaporative demand has been elevated both for the water year to date, and over the past 4 weeks (Figure 4).

Streamflow integrates climatological forcings and is therefore an excellent indicator of drought conditions. Water year to date flows as well as water year forecasts are both well below average throughout the area and with minimal late season flows expected the observations and forecast percentages are converging Figure 5). Many of the water year volume forecasts align closely with the driest few water years on record. Recent streamflow observations show many USGS gages in the lowest 5th percentile, and several near record low 28 day average flows (Figure 6). There have been no changes to the US Drought Monitor since the June report. Currently the entire NWS Reno service area is classified in severe to exceptional drought (Figure 7).

Summary of Impacts: Extreme fire behavior on the Beckwourth Complex and degraded air quality from smoke. Major impacts to agriculture and ranching. Reports include: Reduced irrigation water, early irrigation shut off, many stock ponds and springs dry, reduced hay crops, reduced forage, animal stress, reduced stock weights, and reduced grazing on public lands. Low flows and elevated water temperatures will impact fisheries and stream ecosystems. Recreational impacts include: Early closure of winter recreation areas, low streamflows (limited and short whitewater season), low lake levels, boat ramp closures, and campfire bans in the Tahoe Basin, and campfire restrictions in other national forest and BLM lands. Note: Please report any new or missing drought impacts here.

Drought Mitigation Actions: On July 8th Governor Newsom expanded a drought emergency to 50 counties. This now includes Mono County and the entire NWS Reno Service area. All 16 Nevada counties and 50 California counties in California have previously been designated USDA primary natural disaster areas due to drought. The designation increases access to federal assistance for farm operators. Truckee Meadows Water Authority moved to level 2 drought response on May 20th (of four possible levels). Previously reported actions include: Hauling water, moving livestock, selling livestock, supplemental feed, campfire and firework restrictions, Note: Please report any new or missing drought mitigation actions to the email below.

Local Drought Outlook: For the short-term there is some relief in store from the extreme heat, but temperature outlooks at various scales continue to favor warmer than normal conditions. The 8-14 day outlook from the CPC signals chances for a northern push of monsoonal moisture favoring above normal precipitation for the area. Ensemble models favor warmer than normal conditions for August-October with no clear signal for precipitation (Figure 8). **Absent a very strong monsoon, drought conditions are likely to persist and/or increase in magnitude at least until the return of fall/winter rains.**

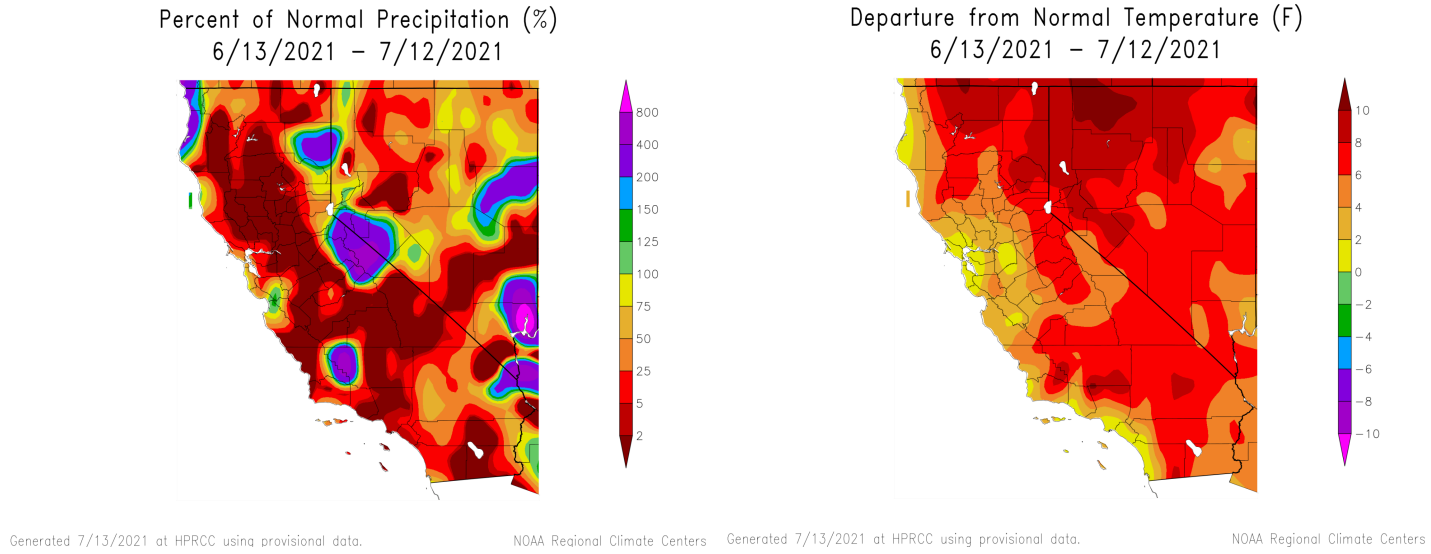

Figure 1. 30 day Precipitation as percent of average (left) and 30 day temperature departure (right)

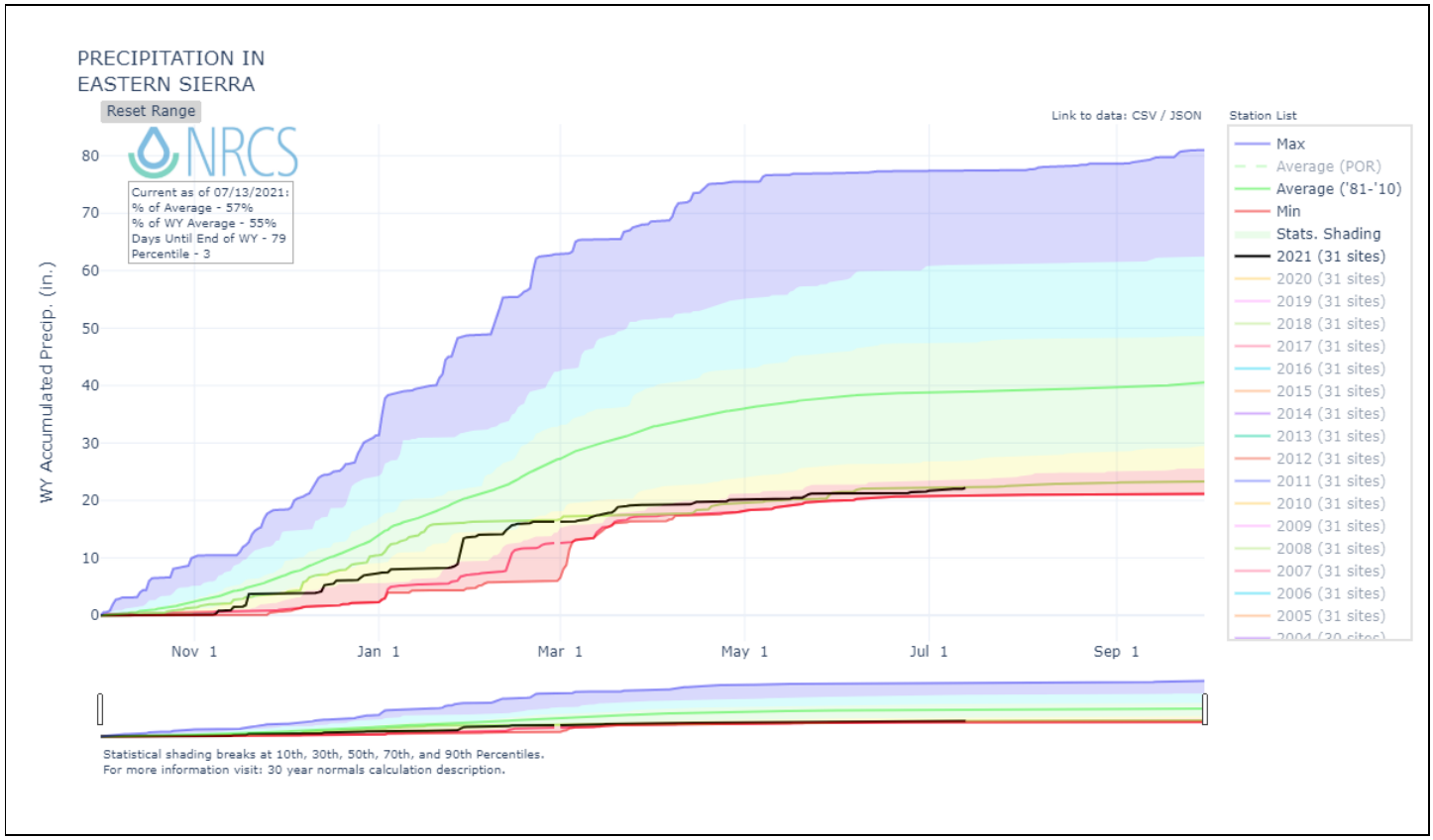

Figure 2. SNOTEL Water year to date precipitation for Tahoe, Truckee, Carson, and Walker basins.

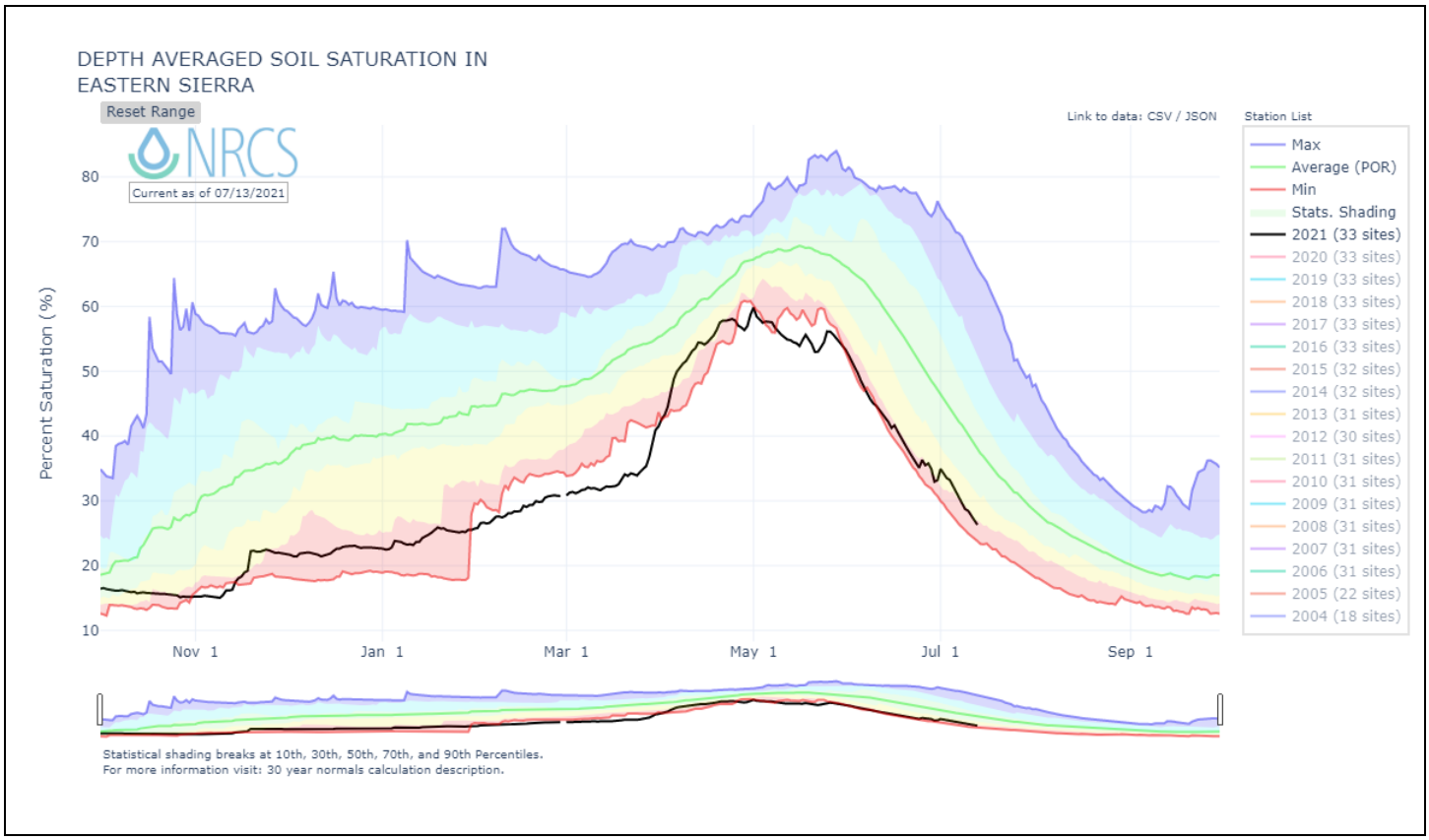

Figure 3. Average SNOTEL soil moisture for the combined Truckee, Carson, and Walker Basins. Note the relatively short period of record (2004-2021).

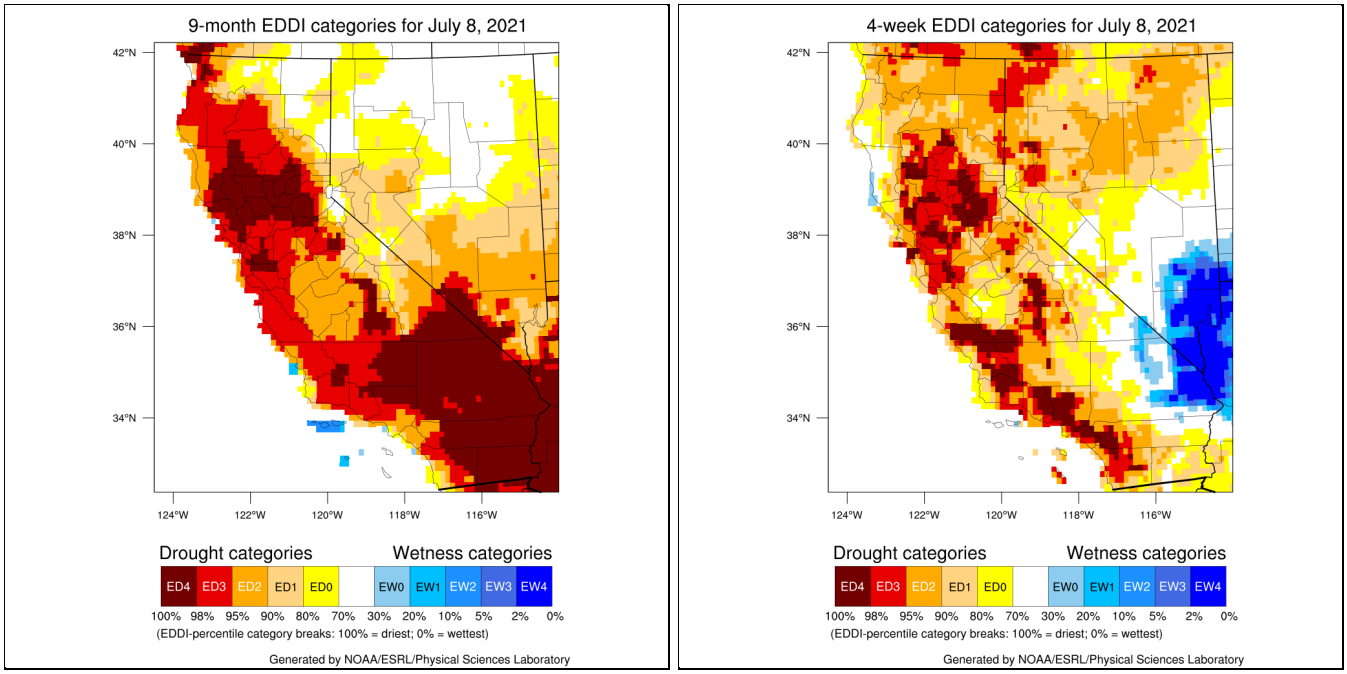

Figure 4. Evaporative Demand Drought Index for the past 9 months on the left, and last 4 weeks on the right.

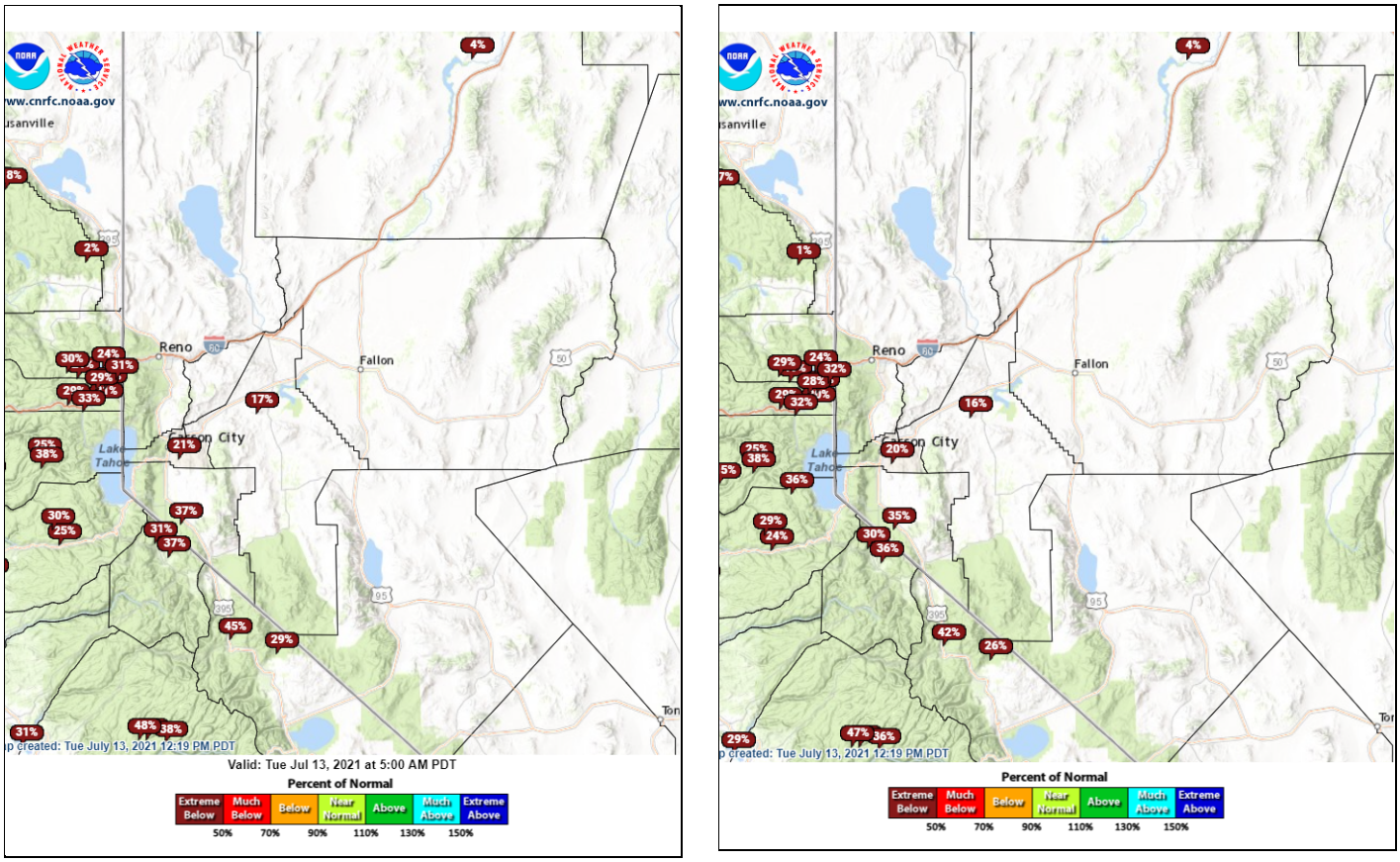

Figure 5. CNRFC Water Year 2021 Observed Streamflow volume to date (left) and Water Year 2021 Forecast (Right).

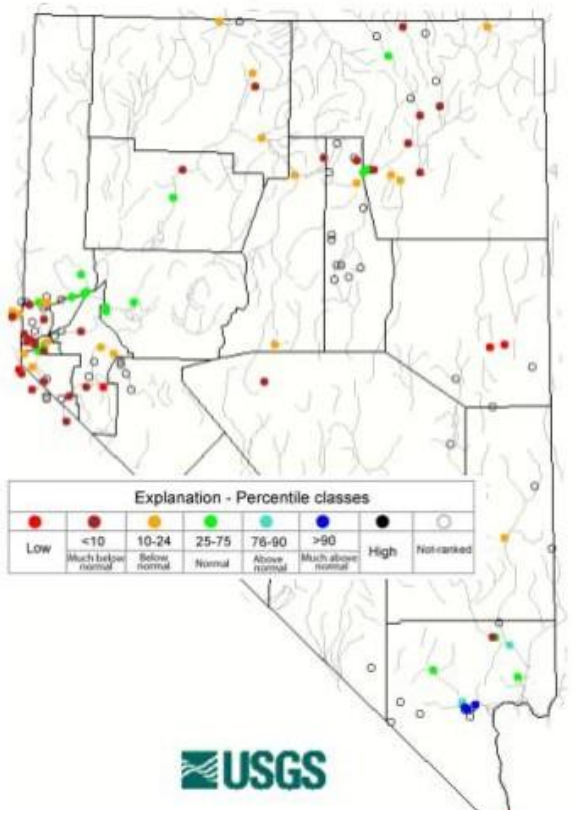

Figure 6. USGS 28 day streamflow for Nevada

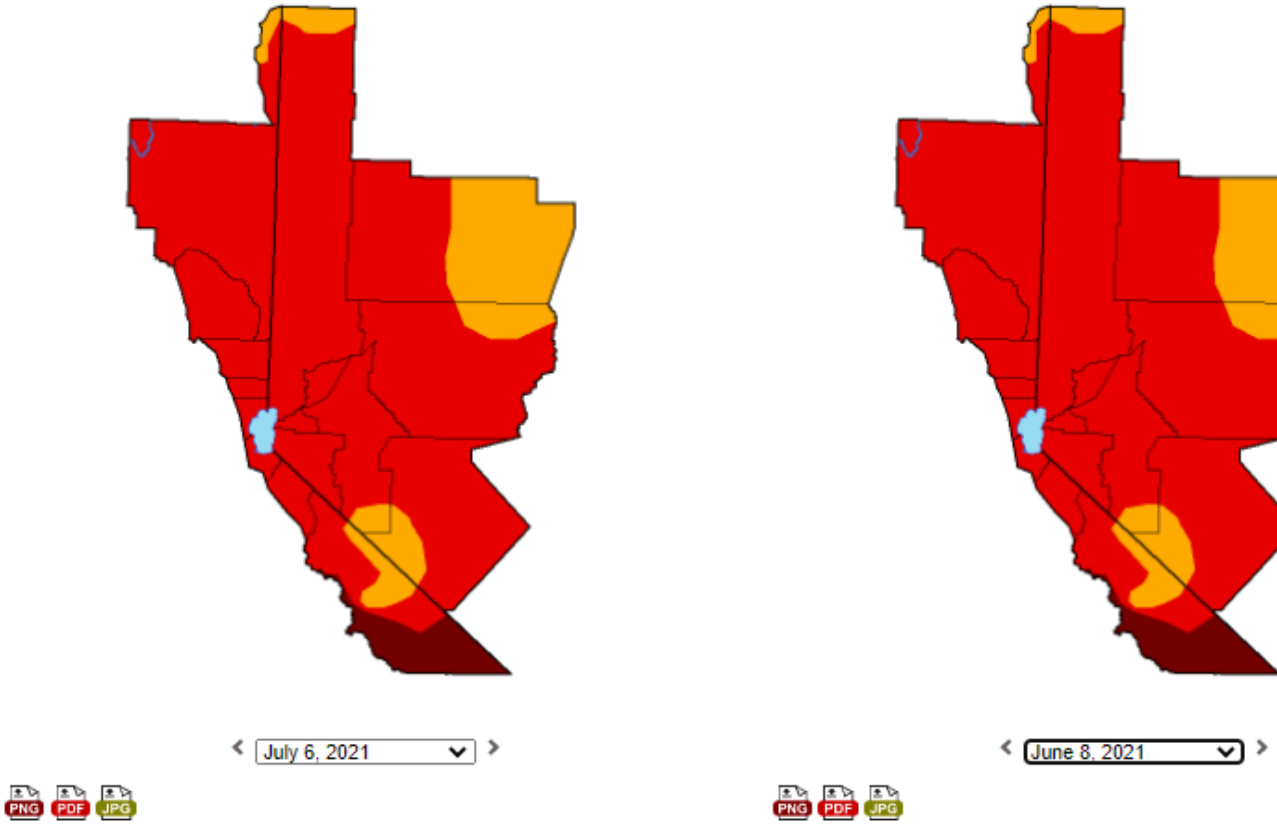

Figure 7. USDM comparison of drought most current drought conditions on the left, and Mid-May on Right.

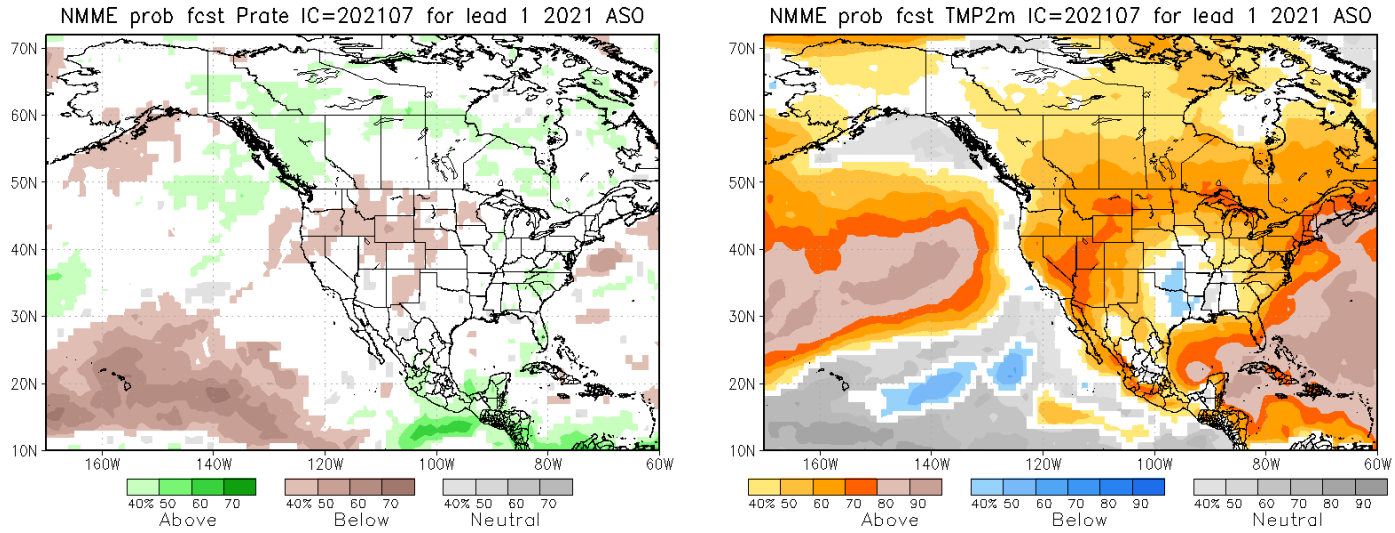

Figure 8. North American Multi Model Ensemble August - October precipitation (left) and temperature (right) probability forecasts. Issued 7/9/21

Weblinks:

Drought Monitor
New Drought.gov
NOAA CPC Drought page
CNAP Drought tracker
California Nevada River Forecast Center
WRCC Drought Tracker
WRCC Enso page
Evaporative Demand Drought Index
US Seasonal Drought Outlook

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